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AUTHOR Legenza, Alice; Knafle, June D.
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ABSTRACT

Two studies concerning the language-stimulation value of pictures for children were conducted. The first study tested the validity of a formula that classifies pictures as having high, medium, or low potency, based on the amount of language they stimulate in viewers. (The formula takes into acccunt factors such as the number of animals, people, and colors present when assigning a picture's potency level.) Sixty students from kindergarten through seventh grade were shown three pictures, one from each category, and were asked to describe everything they saw. Results indicated that the students made significantly more responses to high-potency pictures than to those with medium or low potency, therefore confirming the formula as a valid predictor of the extent to which children will respond verbally to a picture. The second study applied the formula to the pictures in eight basal readers and found that most pictures were of low potency (60-100%) and that only one reader had high-potency pictures (7%). These results indicate that publishers of basal readers should reexamine their criteria for selecting pictures, perhaps including fewer pictures but those which more effectively stimulate children's language development. The need for further research is also stressed. (CC)

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Assessing Pictures Through Children's Responses

Alice Legenza

University of Kansas

and

June D. Knafle

Northeastern Illinois University

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Picture Potency Formula: Validation Study

Alice Legenza

Manzo and Legenza (1975) presented a formula analogous to a readability formula for assessing the language stimulation value of pictures. This formula's main purpose was to predict the extent to which primary grade children are likely to respond to pictures. It was expected that children would make more responses to high potency pictures, and fewer to medium and low potency pictures. Validity of this formula, however, was not established. Thus, the prupose of this study was to establish the validity of the Picture Potency Formula, and to determine whether the formula can be applied to older children.

Method

Sixty students from kindergarten to seventh grade (25 kindergarteners, 22 first graders, and 13 pupils from grades 2,3,5,6,and 7) served as the experimental subjects. The kindergarten students were from a white, middle-class school in Kansas City, MO.,while the 1st-7th graders were from a lower-middle class racially mixed school in Chicago.

All children were shown 3 pictures, of which 1 could be classified as low potency, 1 medium potency, and 1 high potency. All kindergarten students were presented with the same 3 pictures and all 1st-7th graders were presented with a different set of 3 pictures. The pictures were randomly presented, but with the stipulation that each picture be presented in each order an equal number of times. Each student was successively shown the 3 pictures and told, "I want you to tell me about this picture. Tell me everything you see in the picture and everything you see happening in this picture." When the student was finished, the examiner asked, "Is there anything else you want to tell me about this picture?" Each different thing the student said was recorded. One-way analysis of variance using a repeated measures design was computed for total student responses.

Results

The following means and standard deviations (S. D.) for total responses were obtained for the kindergarten students: high potency pictures - mean = 11.20 (S. D. = 11.10); medium potency pictures - mean = 5.48 (S. D. = 7.27); low potency pictures - mean = 3.32 (S. D. = 4.60). Treatment effects were significant at the .001 level (F (2,48) = 17.21). Tukey comparisons showed that the children responded 1) more to the high potency pictures than to the medium potency pictures ($p < .001$) and 2) more to the high potency pictures than to the low potency pictures ($p < .001$). The comparison between the medium and low potency pictures was not significant.

The following means and standard deviations for total responses were obtained for the first grade students: high potency pictures - mean = 42.14 (S. D. = 15.53); medium potency pictures - mean = 32.68 (S. D. = 8.73); low potency pictures - mean = 23.73 (S. D. = 5.22). Treatment effects were significant at the .001 level (F (2,42) = 40.76). Tukey comparisons showed that the children responded 1) more to the high potency pictures than to the medium potency pictures ($p < .001$), 2) more to the high potency pictures than to the low potency pictures ($p < .001$), and 3) more to the medium potency pictures than to the low potency pictures ($p < .001$).

No statistical comparison was made for total responses for the 2nd-7th graders, but the following mean scores were obtained: high potency pictures - 48.83; medium potency pictures - 34.50; low potency pictures 24.83.

Discussion

Results indicated that both the kindergarten and first grade children made significantly more responses to high potency pictures than to medium and low potency pictures, and that the first graders also made significantly more responses to medium potency pictures than to low potency pictures. Although the kindergarteners made more responses to medium than to low potency pictures, the differences were not significant.

Thus the Picture Potency Formula is a valid predictor of the extent to which primary grade children will respond to a picture, confirming the work of Manzo and Legenza (1975). Additionally, it appears that the formula may also be valid for use with older children, as the mean scores of 2nd-7th graders followed the same pattern as the scores of the kindergarten and first graders. Further testing, however, needs to be conducted before the formula can be considered valid for older students.

Reference

Manzo, A. V. & Legenza, A. A formula for assessing the language stimulation value of pictures. Language Arts, 1975, 52, 1085-1089.

Footnote

Barbara Lorkowski and Susan Segal assisted with the data collection, and Marilyn Cancellieri assisted with the data analysis. This research was partially supported by a grant from Northeastern Illinois University's Committee on Organized Research.

Pictures in Basal Readers: How Effective?

Alice Legenza and June D. Knafle

How effective are the pictures in children's texts? This issue has been a controversial one: for example, some studies have found pictures to be an aid to word recognition (King & Muehl, 1965; Denburg, 1976-77), while others have not (Duell, 1968; Samuels, 1967, 1970); some studies have found pictures to be an aid to comprehension (Matz & Rohwer, 1971; Denburg, 1976-77), while others have not (Miller, 1938; Vernon, 1954; Weintraub, 1960). The differing results may have been caused by such factors as differing methods of experimentation; complexity and quality of picture cues; individual differences in learners, such as experiential background, age, and intelligence; as well as differing definitions of the reading skill to be measured. But none of the researchers has recommended that pictures by excluded altogether; all have agreed that pictures are a definite source of motivation and interest in reading. Researchers have noted that good pictures can stimulate and increase attention and motivation for reading (Gombrich, 1972; Kennedy, 1974); pictures have an emotional impact (Vernon, 1953) and are superior to words in evoking mental images (Paivio & Yarmey, 1966; Rohwer, 1970). Pictures may also be used to assess children's language abilities in a pleasant informal

situation, as recommended by Monroe (1951), as well as providing information concerning a child's reading readiness (Vernon, 1958). Robinson (1958) recommended the use of pictures to help develop children's visual discrimination abilities.

Pictures in children's books, especially basal readers, seem to be a strong selling point for the books, and many teachers seem reluctant to order basal series which they think might not be visually attractive to their pupils, particularly younger pupils, regardless of the content of the texts. And publishers are well aware that unillustrated books don't sell well for young children. It even seems as though publishers use pictures in basal readers as a primary vehicle with which to compete with each other for sales. Since pictures in basal readers may substantially increase production costs of the books, the pictures included should be of maximum effectiveness, not merely expensive distractors.

But how does one judge the effectiveness of a picture? Research in this area is lacking. However, Manzo and Legenza (1975) developed a formula, the Picture Potency Formula, for assessing the language stimulation value of pictures. The formula classifies pictures into three categories: those that will stimulate a relatively high amount of language (high potency pictures), those that will stimulate a relatively moderate amount of language (medium potency pictures), and those that will stimulate a relatively low amount of language (low potency pictures). The formula takes such things as number of animals, people, objects, actions, and colors into consideration in assigning a potency level to a picture. This article presents the results that were obtained by applying the

formula to several widely used basal series for first- and second-graders.

Method

Eight first- and second-grade basal readers were analyzed. (Ginn, 1976; Harcourt, Brace & Jovanovich, 1974; Holt, Rinehart & Winston, 1973; Houghton-Mifflin, 1976; Lippincott, 1975; Lyons & Carnahan, 1974; Scott Foresman, 1976, Open Highways, 1974) Several pictures from each book (in each level) were selected to be analyzed according to the Picture Potency Formula. The average number of pictures analyzed for each first-grade series was eleven, and the average number of pictures analyzed for each second-grade series was six. Pictures selected to be analyzed were equally spaced throughout each book. The number of pictures analyzed from each series was unequal because the series have different numbers of levels per grade. For example, Scott Foresman's Open Highways has only two levels for first grade, while the Lyons and Carnahan series has five.

Findings

Table 1 shows the percentage of pictures from each first- and second-grade series found to be of high, medium, and low potency.

Insert Table 1 about here

The majority of pictures from all first-grade series were of low potency (60%-100%), and only one series had high potency pictures (Ginn: 7%). The low potency percentages for second-grade series ranged from 75%-100%, and no high potency pictures were found.

Discussion

It is clear from this analysis that first- and second-grade basal readers do not have pictures of maximum effectiveness, in terms of stimulating language development. In fact, the majority of the pictures were classified as low potency pictures. Since primary teachers usually spend a great deal of time using the pictures in basal readers to develop language facility in their students, it would seem that publishers should reexamine their criteria for selecting basal reader pictures. Rather than the large number of low potency pictures presently used in basals, perhaps a smaller number of good (high potency) pictures would be more effective in the classroom. Reducing the number of ineffective pictures in basals would also probably result in lower production costs.

Another possible implication of this analysis is that differing results of studies employing pictures may be partially caused by the different kinds of pictures used in the studies. Perhaps as researchers become more aware of the differing language stimulation value of pictures, research results will become less ambiguous.

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Table 1

Percentage of Pictures from Each Series
of High, Medium, and Low Potency

Potency	Series							
	Scott-Foresman	Open Highways	Ginn	Harcourt Brace & Jovanovich	Houghton-Mifflin	Holt	Lyons & Carnahan	Lippincott
				FIRST GRADE				
HIGH	0	0	7%	0	0	0	0	0
MEDIUM	39%	33%	33%	6%	20%	20%	40%	0
LOW	61%	67%	60%	94%	80%	80%	60%	100%
				SECOND GRADE				
HIGH	0	0	0	0	0	0	0	0
MEDIUM	25%	0	17%	0	25%	17%	25%	17%
LOW	75%	100%	83%	100%	75%	83%	75%	83%